Contribution ID: **328** Type: **Poster**

Quantitative evaluation of carbonate reservoir pore structure based on fractal characteristics

Monday, 14 May 2018 16:15 (15 minutes)

Pore structure of large scale porous limestone reservoir with strong heterogeneity is very complex, so it is difficult to evaluate its pore structure of Mishrif Formation of W oilfield in Iraq. Based on thin section observation, porosity and permeability test and mercury injection capillary pressure test, fractal theory was applied to quantitative pore structure evaluation, and the pore fractal dimension criterion for reservoir type classification was established. There are two types of reservoir pore structure fractal characteristics. Some samples called"single segment"perform obvious fractal character overall. Others called"multiple segments" have distinct large pore throat system and small pore throat system which perform unique fractal characters respectively while have no uniform fractal character overall. The complexity and heterogeneity of pore structure of porous limestone can be reflected by fractal dimension, the greater the fractal dimension, the more complex pore structure, and the more conspicuous segmental character in the relationship between capillary pressure and water saturation, the stronger the heterogeneity. The samples were classified based on the fractal dimension combined with porosity and permeability distribution of the samples. The majority of type I-II and type III-IVrespectively corresponded to"multiple segments"and"single segment"fractal characteristics. It has an important guiding significance for the quantitative evaluation of pore structure to similar carbonate reservoir.

References

Acceptance of Terms and Conditions

Click here to agree

Primary authors: Mr LIU, Hangyu; Dr TIAN, Zhongyuan; Prof. GUO, Rui

Presenter: Mr LIU, Hangyu

Session Classification: Poster 1

Track Classification: MS 1.02: Fractal Theory and its Applications to Flow and Transport Properties of Porous Media